

Amendments to the Claims: This listing of claims will replace all prior versions, and listings, of claims in the application

Listing of Claims:

1. (Currently Amended) A method for ~~detecting~~ determining the ~~presence-absence~~ of a residual amount of corrosion inhibitor on a copper surface subjected to a cleaning solution containing a corrosion inhibitor comprising exposing said copper surface to a reactant that ~~will attack~~ reacts with copper on said copper surface ~~causing to cause a pronounced-visible~~ color change of said copper surface, when the copper surface is void of said color change indicating an absence of said residual corrosion inhibitor ~~on said copper surface~~.
2. (Previously Presented) A method according to claim 1 including using a gaseous reactant.
3. (Previously Presented) A method according to claim 2 including exposing said copper surface to hydrogen sulfide gas.
4. (Currently Amended) A method according to claim ~~23~~ further comprising the step of forming the hydrogen ~~including introducing acetic acid into a solution of sodium sulfide gas by introducing acetic acid into a solution of sodium sulfide in deionized water at room temperature to generate hydrogen sulfide gas as said reactant.~~
5. (Currently Amended) A method for determining the ~~presence-absence~~ of residual corrosion inhibitor on copper surfaces or copper components of a microelectronic device or microelectronic devices having been subjected to a cleaning prior to a subsequent fabrication operation comprising:

including a sacrificial copper coupon or test piece in a group or batch of said devices during said cleaning process;

removing said test piece from said batch and exposing said test piece to a ~~gaseous~~ reactant selected to react with said test piece to produce a visible color change of a surface of said test piece in the absence of corrosion inhibitor on said surface of said test piece.

6. (Currently Amended) A method according to claim 5 including using ~~hydrogen sulfide as said~~ gaseous reactant.

7. (Currently Amended) A method according to claim ~~6~~13, including producing said hydrogen sulfide gas by reacting acetic acid with an aqueous solution of sodium sulfide.

8. (Withdrawn) An apparatus for detecting the presence of a residual amount of corrosion inhibitor on a copper surface subjected to a cleaning solution containing a corrosion inhibitor comprising in combination:

a first receptacle adapted to receive a test piece or pieces that have been exposed to cleaning solution,

a second receptacle placed inside said first receptacle proximate and said test pieces, said second receptacle adapted to receive reactants to produce a hydrogen sulfide gas; and

means to cover said first receptacle and direct said hydrogen sulfide gas at said test piece or pieces.

9. (Withdrawn) An apparatus according to claim 1 including sodium sulfide solution in said second receptacle.

10. (Withdrawn) An apparatus according to claim 9 including means to introduce an acid into said second receptacle prior to covering said first receptacle.

11. (New) A method for determining the absence of a residual amount of corrosion inhibitor on a copper surface subjected to a cleaning solution containing a corrosion inhibitor comprising the steps of:

cleaning said copper surface with said cleaning solution containing said corrosion inhibitor;

rinsing said cleaned copper surface;

exposing said rinsed copper surface to a reactant that reacts with said copper surface devoid of residual corrosion inhibitor causing a visible color change to said copper surface devoid of said residual corrosion inhibitor, wherein said color change indicates an absence of said corrosion inhibitor on said copper surface.

12. (New) A method for determining the absence of residual corrosion inhibitor on copper surfaces or copper components of microelectronic devices having been subjected to a cleaning solution prior to a subsequent fabrication operation comprising the steps of:

including a sacrificial copper coupon or test piece in a group or batch of said devices during said cleaning process;

cleaning said group or batch and said sacrificial copper coupon or test piece;

removing said sacrificial copper coupon or test piece from said group or batch of said microelectronic devices; and

exposing said sacrificial copper coupon or test piece to a gaseous reactant selected to react with said sacrificial copper coupon or test piece to produce a visible color change on a surface said sacrificial copper coupon or test piece devoid of said corrosion inhibitor on said surface of said sacrificial copper coupon or test piece.

13. (New) A method according to claim 6, wherein said gaseous reactant is hydrogen sulfide gas.

14. (New) A method for determining the absence of residual corrosion inhibitor on a copper surface or copper components of a microelectronic device having been subjected to a cleaning operation comprising, including a sacrificial copper test piece in a group or batch of the devices during the cleaning operation, removing the test piece from the batch after the cleaning step is completed and exposing the test piece to a reactant selected to react with the test piece to produce a visible color change on the surface of the test piece, wherein the color change of the surface indicates presence or absence of a residual corrosion inhibitor on the test piece and the components being processed.